AMENDMENTS TO THE SPECIFICATION:

On page 1, immediately following the title, please insert a heading as follows:

BACKGROUND OF THE INVENTION

The heading on page 1, line 4 has been changed as follows:

~~Description~~ Field of the Invention

On page 1, line 6 please insert a heading as follows:

GENERAL DESCRIPTION OF THE INVENTION

The paragraph beginning on page 1, line 7 has been changed as follows:

The method is especially well-suited for treating powder particles ~~consisting~~ of a $Cu(In,Ga)Se_2$ compound.

The paragraph beginning on page 1, line 20 has been changed as follows:

In terms of the method, this objective is achieved according to the invention by a method for treating powder particles ~~consisting~~ of a $Cu(In,Ga)Se_2$ compound, in which method the powder particles and sulfur are placed into a vessel and the vessel contents ~~consisting~~ of the powder particles and the sulfur are heated ~~up~~ and kept at a constant temperature after having been heated ~~up~~.

The paragraph beginning on page 2, line 1 has been changed as follows:

The possibility exists that regions with a sub-stoichiometric content of Se might exist in the particles ~~consisting~~ of the $Cu(In,Ga)Se_2$ compound. In these regions, a deposition of a foreign phase ~~consisting~~ of Cu[[,]] and Ga or In can occur from a phase ~~consisting~~ of

stoichiometric $Cu(In,Ga)Se_2$, whereby the foreign phases tend to be deposited on the surface of the powder particles.

The paragraph beginning on page 2, line 10 has been changed as follows:

With the method according to the invention, [[a]] sulfurization ~~was~~ is carried out during which the foreign phases present on the surface of the powder particles are presumably converted into $Cu(In,Ga)S_2$, a compound that is likewise employed in solar cells.

The paragraphs beginning on page 2, line 23 have been changed as follows:

The powder particles are then heated ~~up~~, preferably to a temperature between 400°C and 600°C ~~[752°F and 1112°F]~~ (752°F and 1112°F).

The sulfur is preferably heated ~~up~~ to a temperature of about 100°C ~~[212°F]~~ (212°F).

The paragraph beginning on page 2, line 31 has been changed as follows:

In a likewise preferred implementation of the method, a mixture ~~consisting~~ of powder particles and sulfur is filled into an ampoule.

The mixture is then heated to a temperature between 300°C and 600°C ~~[572°F and 1112°F]~~ (572°F and 1112°F) and kept at this temperature for a period of time between 5 minutes and 4 hours. An especially advantageous temperature range lies between 380°C and 410°C ~~[716°F and 770°F]~~ (716°F and 770°F).

The paragraph beginning on page 3, line 10 has been changed as follows:

The solar cell comprises a back contact, a mono-particle membrane, at least one semiconductor layer and a front contact, ~~and it is characterized in that~~ wherein the mono-particle membrane contains the powder particles treated according to the invention.

The paragraphs beginning on page 3, line 20 have been changed as follows:

In an implementation of the method, the powder particles ~~consisting~~ of a $Cu(In,Ga)Se_2$ compound and the sulfur are filled into a so-called two-zone ampoule, whereby the powder particles are placed into one of the zones and the sulfur is placed into the other zone of the two-zone ampoule.

A two-zone ampoule ~~consists of~~ including a tube that is closed or can be closed at both ends and that is constricted in the middle. The shape of the ampoule is thus like that of an hourglass. The two-zone ampoule is used lying horizontally with this method and should be made of a material that does not react with the substances that are filled into it. Thus, it is made, for example, of quartz glass.

A typical filling quantity ~~consists of~~ is 10 grams of powder particles and 2 grams of sulfur.

The two-zone ampoule is evacuated and the sulfur present in the one zone is heated to a temperature of about 100°C ~~[212°F]~~ (212°F). This results in the formation of gaseous S_2 that spreads through the entire ampoule.

The powder particles present in the other zone of the two-zone ampoule are heated to a temperature between 400°C and 600°C ~~[752°F and 1112°F]~~ (752°F and 1112°F).

The paragraph beginning on page 4, line 12 has been changed as follows:

The powder particles and the sulfur are now kept at the appertaining temperature for a period of time between one hour and 50 hours. During this period of time, as explained above, the foreign phases ~~consisting~~ of Cu[[,]] and In or Ga that might be present on the surface of the powder particles are presumably converted into a $Cu(In,Ga)S_2$ compound.

The paragraphs beginning on page 4, line 21 have been changed as follows:

Especially good results were obtained in terms of improving the photovoltaic properties of the powder particles by means of a treatment in which the powder particles were heated to 530°C ~~[986°F]~~ (986°F) and the sulfur was heated to 107°C ~~[224.6°F]~~ (224.6°F). At these temperatures, a sulfur vapor pressure of 1.33 Pa was established in the zone of the two-zone ampoule containing the powder particles. The treatment time was 18 hours.

In another implementation of the method, a mixture ~~consisting~~ of the powder particles and the sulfur is filled into an ampoule which is once again made of quartz glass. A typical mixture ~~consists of~~ is 50 vol.-% powder and 50 vol.-% sulfur.

The ampoule is evacuated and the mixture is heated to a temperature between 300°C and 600°C ~~[572°F and 1112°F]~~ (572°F and 1112°F), preferably to a temperature between 380°C and 410°C ~~[716°F and 770°F]~~ (716°F and 770°F). At this temperature, the sulfur is liquid and uniformly surrounds the powder particles which, at this temperature, are present in the solid phase. Thus, the powder particles are "boiled" in the liquid sulfur in a manner of speaking.

With this implementation, the period of time during which the mixture is kept at the established temperature after the heating step is between [[5]] five minutes and [[4]] four hours.

During this period of time, the foreign phases ~~consisting~~ of Cu, In or Ga that might be present on the surface of the particles are presumably once again converted into a $Cu(In,Ga)S_2$ compound.

Especially good results in terms of improving the photovoltaic properties of the particles were obtained by means of a ~~5-minute~~ five-minute treatment at 410°C ~~[770°F]~~ (770°F) and a subsequent 30-minute treatment at 380°C ~~[716°F]~~ (716°F).

On page 5, line 15 please insert a heading as follows:

BRIEF DESCRIPTION OF THE DRAWINGS

The paragraph beginning on page 5, line 16 has been changed as follows:

On the basis of the drawings, a few analyses will now be presented that were carried out for solar cells that made use of a powder ~~consisting~~ of a $CuInSe_2$ compound that had been treated by means of the method according to the invention.

On page 7, before line 1 please insert a heading as follows:

DETAILED DESCRIPTION

The paragraphs beginning on page 7, line 1 have been changed as follows:

The analysis was carried out with powder particles ~~that consisted~~ of a $CuInSe_2$ compound prior to the treatment and thus did not contain any Ga.

Figure 1a shows the light-microscopic image of such a powder particle that was "boiled" for 15 minutes at 410°C ~~[770°F]~~ (770°F) (410°C, 15') and subsequently for 30 minutes at 380°C ~~[716°F]~~ (716°F) (380°C, 30') in liquid S_2. An analysis track is likewise drawn in the figure.

The paragraphs beginning on page 9, line 9 have been changed as follows:

The back contact ~~consists of~~ includes an electrically conductive adhesive that is applied onto a glass substrate.

At least another semiconductor layer is applied onto the mono-particle membrane consisting of the particles embedded in the polymer membrane. The semiconductor layer is preferably a CdS buffer layer and a layer ~~consisting~~ of intrinsic ZnO.

The paragraphs beginning on page 9, line 33 have been changed as follows:

The shown measured results and especially the curve that indicates the dependence of the open-circuit voltage V_{OC} confirm the assertion made above that especially good results in terms of improving the photovoltaic properties of the powder particles were obtained by means of a treatment in which the powder particles were heated to a temperature of 530°C ~~[986°F]~~ (986°F).

Figure 12 shows the dependence of the characteristic values on the other parameters of the treatment. The results likewise relate to the treatment in the two-zone ampoule and were recorded for powder particles that were heated to a temperature of 530°C ~~[986°F]~~ (986°F) for the treatment.

The paragraph beginning on page 10, line 29 has been changed as follows:

The right-hand side of the diagram in Figure 12 shows the dependence of the characteristic values for a sulfurization (annealing in S) on the duration of the treatment and on the sulfur vapor pressure set in the zone of the two-zone ampoule containing the powder particles. The temperature in the zone containing the powder particles was 530°C ~~[986°F]~~ (986°F) and the sulfur vapor pressure was varied exclusively by changing the temperature that prevailed in the zone containing the sulfur.

The paragraph beginning on page 12, line 6 has been changed as follows:

The powder ~~consisting~~ of the alloys CuIn and CuGa is now filled into an ampoule that is made of a material that does not react with any of the substances that are to be placed into it. Thus, it is made, for example, of quartz glass.

The paragraph beginning on page 12, line 18 has been changed as follows:

The ampoule is now evacuated and heated with the indicated content to a temperature between 650°C and 810°C ~~[1202°F and 1490°F]~~ (1202°F and 1490°F). $Cu(In,Ga)Se_2$ is formed during the heating process.

The paragraph beginning on page 14, line 25 has been changed as follows:

Especially in view of the possible application purposes of the powder produced with the method according to the invention, it should be pointed out that it is also fundamentally possible to add S, in addition to the Se, to the powder ~~consisting~~ of the CuIn and/or CuGa and to melt it together with the fluxing agent. By the same token, the Se can be completely replaced with S.